

CLAIMS

1) Prefabricated sealing membrane formed of a support or reinforcement, such as one or several backings that are
5 fibrous or not, coated on at least one surface, and preferably impregnated throughout, with a modified bitumen base composition, characterized in that the thermoplastic bituminous coating and or impregnation composition is a bituminous binder modified by a thermoplastic polyurethane
10 having the following weight proportion:

- 40 to 90% bitumen,
- 10 to 50% thermoplastic polyurethane,
- 0 to 10% aromatic oil,
- 0 to 50% filler,
- 15 - 0 to 0.5% catalyst.

2) Sealing membrane according to claim 1, characterized in that the bituminous coating and/or impregnation composition has the following weight
20 proportion:

- 60 to 80% bitumen,
- 15 to 40% thermoplastic polyurethane,
- 0 to 5%, preferably 0 to 3%, aromatic oil,
- 0 to 40%, preferably 0 to 20%, filler,
- 25 - 0 to 0.5% catalyst.

3) Sealing membrane according to any one of claims 1 and 2, characterized in that the bituminous coating and/or impregnation composition contains also between 0.01 and 20%
30 by weight of one or several additives improving adhesion, resistance to fire or to flames and/or resistance to roots, of said composition.

4) Sealing membrane according to any one of claims 1 to 3, characterized in that the thermoplastic polyurethane is obtained from a diisocyanate of a functionality substantially equal to 2, preferably an aromatic isocyanate, of a polyol of functionality substantially equal to 2, preferably selected from the group of polyesters, polyethers, polycarbonates and mixtures of these polyols, of molecular weights comprised between 1000 and 5000, and a chain elongation agent, preferably a diol or a molecular weight comprised between 50 and 500.

5) Sealing membrane according to any one of claims 1 to 4, characterized in that the thermoplastic polyurethane is constituted by a quantity of hard segments comprised between 10 and 40%.

6) Sealing membrane according to any one of claims 1 to 5, characterized in that the material or materials forming the filler is or are selected from the group of mineral fillers formed by chalk, silica, talc, dolomite, kaolin and possible mixtures of two or several of these substances.

7) Process for the production of a sealing membrane according to any one of claims 1 to 6, characterized in that it consists in synthesizing a prepolymer of thermoplastic polyurethane, introducing said prepolymer into the bitumen heated to a temperature higher than its melting temperature, then adding at least the chain elongating agent, then the catalyst and finally the other components, heating and agitating the resulting mixture,

preferably intermittently, to achieve complete polymerization, to obtain a composition having a weight formulation according to any one of claims 1 to 3, and, finally, applying the hot modified bituminous composition in a layer on the support such as a fibrous backing, by one or more operations of coating or impregnation.

8) Process for the production of a sealing membrane according to any one of claims 1 to 6, characterized in that it consists in bringing the bitumen to its melting temperature, preferably to 100°C, then adding the polyol or the polyols and the isocyanate adapted to form the thermoplastic polyurethane, agitating the intermediate resulting mixture to obtain about the theoretical quantity of NCO, then adding the chain elongating agent, the catalyst and if desired the other components, progressively increasing the temperature of the final mixture to about 180°C, agitating the mixture intermittently or continuously, until complete polymerization, to obtain a composition having a weight proportion according to any one of claims 1 to 3 and, finally, applying the hot modified bituminous composition in a layer on a support such as a fibrous backing, by one or more operations of coating or impregnation.

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9) Process according to any one of claims 7 and 8, characterized in that the ratio isocyanate/polyol is comprised between 1.0 and 1.1 and is preferably about 1.05.